# IFS 2025 Defense Industry Predictions

Top trends revolutionizing the Defense industry

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# Industry Challenges

- Meeting ESG/ sustainability goals
- Legislations and regulations

- Aging infrastructure and supply chain

- Skills shortage
- Employee retention

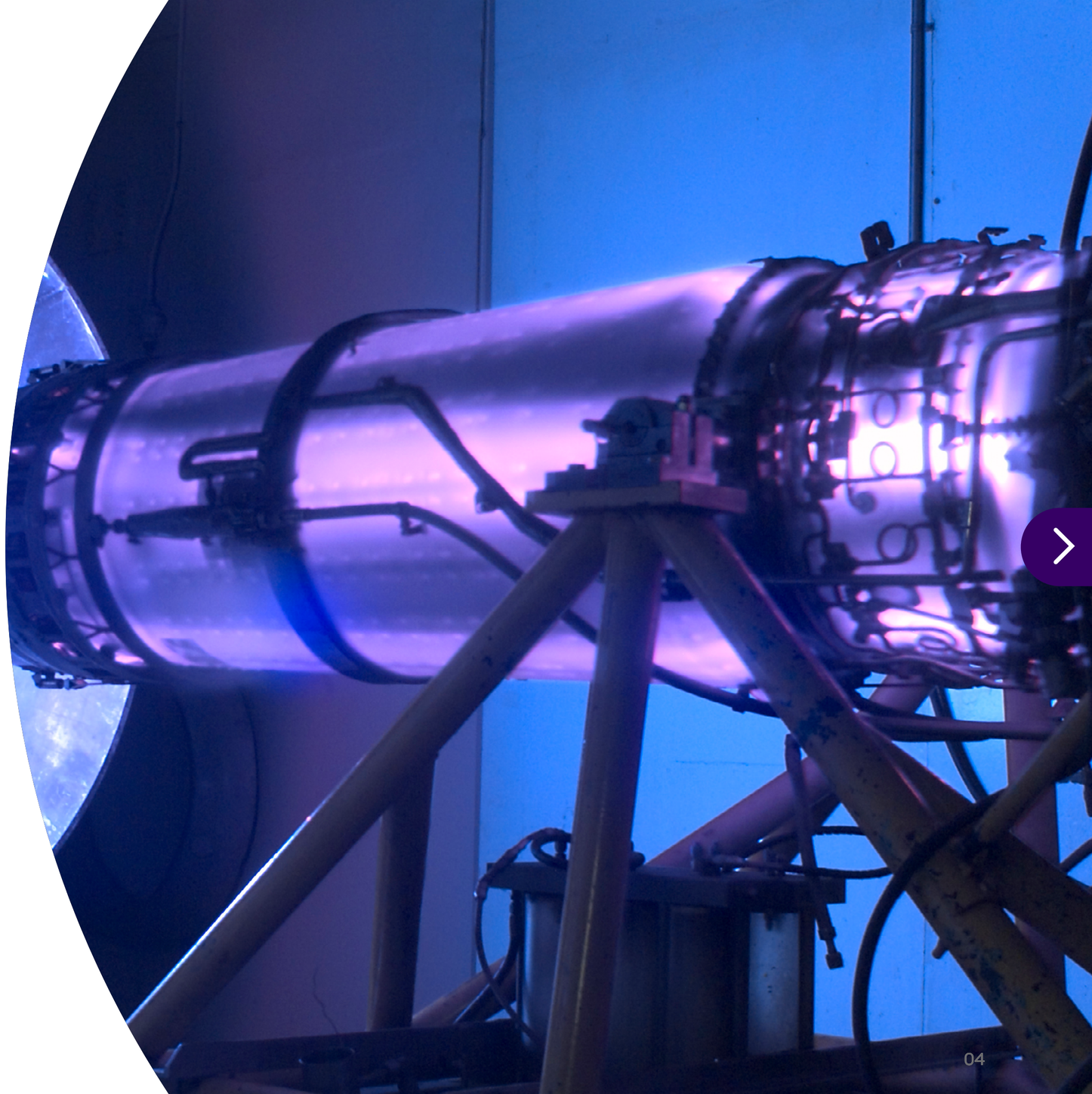
- Increasing demand
- Rising customer expectations

# Prediction #1

## Industrial AI applications help to shrink the maintenance skills gap

The ever-present skills gap in defense MRO continues apace in 2025. The defense industry is seeing an influx of next-gen platforms, as more global defense forces adopt the F-35 and completely new aircraft, such as the B-21 Raider (a more technologically advanced subsonic strategic bomber) enter the fray, bringing the need for an entirely new maintenance knowledge base.

The workforce numbers are plain to see. According to War on The Rocks, the U.S. Air Force alone is currently short 1,800 maintenance personnel, with the U.S Government Accountability Office highlighting continuing challenges meeting aircraft readiness targets. To help mitigate these issues, Deloitte views 2025 as a pivotal year for defense organizations to consider the role AI technologies could play in enhancing traditional talent strategies.



# The Role of Technology

One obvious application of AI is Optimization which offers several key Industrial AI use cases that can directly help organizations accomplish more with existing resources.

Giving technicians access to specialized AI agents through mobile devices can help them quickly navigate complex technical information and manuals, particularly those for new and less familiar aircraft types, as well as reduce time spent troubleshooting by providing root cause and repair suggestions, while enhancing data entry–thereby empowering a single technician to accomplish more.

**IFS Blog: The Rise of Industrial AI: What It Is and Why It Matters**

**Read the full story**

## How could Industrial AI enhance human-machine interaction for Aerospace & Defense?

**Schedule Optimization:** Increasing the maintenance yield by scheduling all activities to as close to their deadline as possible. Over the lifetime of an asset, this results in less maintenance and a reduction of work for technicians.

**Task Order Optimization:** AI can analyze data to optimize task order for efficiency and make the most of the resources and technicians available.

**Optimization of Technician Assignment:** Optimize the assignment of the technician to the task, based on the technician's skills, availability of assets requiring maintenance, and location on the aircraft, lowering unproductive time and maximizing utilization of the most valuable personnel.

# Prediction #2

## The rise of Industry 5.0 brings human and machine together

It’s not just in the hangar where technology is directly helping human workers in the defense industry. Defense manufacturing in 2025 will see increasing adoption of the core principles of Industry 5.0–and its humanizing influence on factory processes, including how workers train for and execute work on the factory floor and beyond.

# The Role of Technology

Some schools of research describe a “Meta-Operator”, defined as an industrial worker that follows the principles of Industry 5.0 and interacts with Industrial Metaverse applications and with their surroundings through advanced Extended Reality (XR) devices.

## 3 ways that XR is being used:

- Training scenarios that are rare in the real world but important for skill shaping
- On the shop floor with digital overlays comparing final product to spec, instructions overlayed on the product itself provide visual next steps
- Accessing the health information of the manufacturing machinery being used in a technician’s field of vision

# Prediction #3

## Naval re-think as uncrewed systems expose large vessel vulnerabilities

The impact of drones and uncrewed systems on naval warfare is clear to see. We have no further to look than the conflict in Ukraine to see that no longer are multi-billion-dollar aircraft fleets or submarines required to disable large ships. Ukraine has disabled up to one-third of the Russian Black Sea fleet largely utilizing small remotely piloted sea drones. As a result, the make-up of naval fleets and the design of naval vessels is changing.

More of the ships being developed in the future will be autonomous or have minimal crews based on the capability of automated systems available today. Conventional Aircraft Carriers are being joined by UAV carriers, exemplified by recent orders and testing of UAV carriers from Portugal, Turkey, and the U.K. These carriers provide the ability to launch drone-attacks from sea. We are learning that bigger does not necessarily mean better.

# The Role of Technology

Autonomous capabilities will be in high demand.

IFS customer Austal is working closely with the United States Navy and Royal Australian Navy and was recently awarded a $44 million autonomous design and construction contract by the US Navy, to deliver autonomous capabilities to the Expeditionary Fast Transport (EPF13).

This ship is a multi-use military platform capable of rapidly transporting troops and their equipment, supporting humanitarian relief or operational efforts, and can operate in shallow waters. But supporting this level of autonomy means being able to collect and analyze vast amounts of data from sensors and other sources and produce actionable insights that improve mission success. As such, while capital ships will continue to form the core of large navies world-wide, more and more of the fleet mass will begin to shift to ships with minimal crews, and smaller, faster, cheaper, uncrewed vessels.

> “Uncrewed systems are also high priority in the US DoD Replicator initiative to augment “the way we fight, using large masses of uncrewed systems which are less expensive, put fewer people in the line of fire, and can be changed, updated, or improved with substantially shorter lead times.”

Learn more

# Prediction #4

## Digitalization ramps up cyber defense requirements

With increasingly digitized assets come increasingly tightened digital compliance requirements across the defense industrial base–and cybersecurity is top of mind for defense departments, none more so than the U.S. Department of Defense. In October 2024, the Cybersecurity Maturity Model Certification (CMMC) Program Final Rule was published and is expected to come into effect in mid-2025.

The U.S. DOD outlines: “The purpose of CMMC is to verify that defense contractors are compliant with existing protections for federal contract information (FCI) and controlled unclassified information (CUI) and are protecting that information at a level commensurate with the risk from cybersecurity threats, including advanced persistent threats.” With the Five Eyes nations looking to align CMMC requirements, organizations in the defense supply chain who have not prioritized compliant levels of cybersecurity run the risk of losing contracts and their place in the defense industrial base.

# The Role of Technology

Cybersecurity requirements compliance gets real: FedRAMP, CMMC, and more!

Imposing more stringent requirements across the defense industry is needed to harden digital defense against external threats such as IP theft which can seriously erode hard won technological advantages on the battlefield.

Alongside the CMMC requirements is the need for cloud-based solutions to adhere to Federal Risk and Authorization Management Program (FedRAMP) that provides a standardized approach to security assessment, authorization, and continuous monitoring. Although not necessarily a true requirement for all cases, FedRAMP is fast becoming a de facto security standard for doing business in the U.S. defense supply chain, but in order to ensure this success, defense organizations need to make sure they are supported by manufacturing software architecture that adheres to military regulations now and into the future. With a secure managed cloud or hybrid enterprise software environment for critical compliance areas such as CMMC, FedRamp or ITAR, defense organizations can operate knowing compliance is assured.

# Navigating what lies ahead

## The defense outlook for 2025 on land, sea and air

As usual, the defense industry is at the cutting edge of new principles, technologies and assets as we move into 2025. AI-powered solutions are set to revolutionize maintenance operations, while Industry 5.0 principles will humanize manufacturing processes. The evolving landscape of naval warfare, driven by the rise of drones and autonomous systems, is reshaping ship design and operational strategies. Underlining these digital developments, stringent regulations such as CMMC are driving a heightened focus on digital security.

By embracing these trends, defense organizations can optimize their operations, enhance workforce capabilities, and ensure the security of their critical assets.

Watch this video to learn how IFS works with partners like Microsoft to enable intelligent production, operation, and In-Service maintenance for Aerospace and Defense.

Watch Video

## About IFS

IFS develops and delivers cloud enterprise software for companies around the world who manufacture and distribute goods, build and maintain assets, and manage service-focused operations. Within our single platform, our industry specific products are innately connected to a single data model and use embedded digital innovation so that our customers can be their best when it really matters to their customers – at the Moment of Service. The industry expertise of our people and of our growing ecosystem, together with a commitment to deliver value at every single step, has made IFS a recognized leader and the most recommended supplier in our sector.

Our global team of over 7,000 employees every day live our values of agility, trustworthiness and collaboration in how we support thousands of customers.

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